надання їм гнучкого графіка праці, в тому числі можливості працювати на дому. Приділяється увага також заходам щодо забезпечення здоров'я співробітників. Для цього регулярно пропонуються медичні перевірки, рекомендуються різні програми страхування.

В результаті нашого дослідження на рис. 1 більш детально визначені головні напрямки ефективної реалізації корпоративної соціальної відповідальності.

Висновки. В цілому, підводячи підсумки дослідження, в процесі формування благодатного грунту імплементації основ концепції корпоративної соціальної відповідальності в господарську практику українських бізнес-суб'єктів, необхідно на різних державних рівнях розробити ефективну політику содействованіе і підтримки. Якість цієї політики безпосередньо впливає на збалансоване суспільний розвиток. Основними пріоритетами при цьому має стати забезпечення взаємовигідних інтересів для бізнесу і суспільства, використання напрацьованого міжнародного досвіду.

4.2. Economy is mathematical case frame by innovative receptivity of personnel on ukrainian industrial enterprises

By a pressing question to date increase of competitiveness of enterprises and increase of profit. It it is possible to attain innovative receptivity (IR) of personnel by an increase. But it is first necessary to define a level IR to date, weak points and places where a large return will be. And for this purpose we and we will consider the economy mathematical model IR of personnel, that is applicable not only for the Ukrainian industrial enterprises but also for other companies.

There are a few methods for a cost estimation, for the testimony of efficiency of activity of enterprise and introduction of new innovative processes.

About we range from 1 to 3 methods estimations that will more suit for IR of personnel in control system by a personnel (HRMS). Cited data in a table 1.

1. Ranged methods of estimation for IR of personnel in HRMS.

Functions HRMS	Expert	Comparative	By a cost
1. Terms of labour	2	1	3
2. Labour relations	1	2	3
3 Management and account of shots	1	2	3
4. Planning prognostication and marketing of personnel	1	2	3
5. Development of shots	2	1	3
6. Analysis and development of methods of stimulation of labour	1	2	3
7. Legal services	2	3	1
8. Development of social infrastructure	1	2	3
9. Development of organizational structure of management	2	3	1

As we see from a table 1, on the first place the method of expert estimation will be used almost everywhere, and further we will apply exactly him, on the second comparative analysis, and on the third place cost method important for such functions of HRMS as development of organizational structure of management and legal services.

For description of mathematical model is required:

1. To define an objective function that will optimize the process of IR of personnel.

2. To choose limitations (on resources, at times, on the amount of producible product).

3. To choose going near optimization (what a maximal result is sent to).

Objective functions.

1. The net brought profit (NPV) over, settles accounts as a sum of acuestss instead of expenses and divided by indexes that influence (inflation) and other, if NPV more zero, then a project can be accepted, if NPV less zero, then a project needs to be rejected.

NPV is a profit - calculated as acuestss instead of charges taking into account the index of discounting. What anymore initially expenses on introduction of new innovations the less term of recoupment of products.

If NPV is equal to the zero, it means that money streams suffice from a project, that

а) to recover the invested capital

в) to provide a necessary yield on this capital.

If NPV positive, so, a project will bring in a return, and than more size of NPV, the more advantageous / the profitable is this project. As an acuests of creditors (for whom you took money on credit) is fixed, all acuests higher than this level belongs to the shareholders. If a company will approve a project with zero NPV, position of shareholders will remain unchanging - a company will become anymore, but a share price will not grow. However, if a project has positive NPV, shareholders will become richer[253].

Further we will illustrate on the certain Ukrainian company OWEN, that is a leader in industry of industrial automation.

In a table. 2. The net brought profit over is shown for to 6 investment projects, such as: agriculture (AC), electroenergy (EE), food industry (FI), housing communal economy (HCE), water is a channel (WC), transport (T) on a company OWEN, that were begun in 2015 and it is illustrated on to the picture 1.

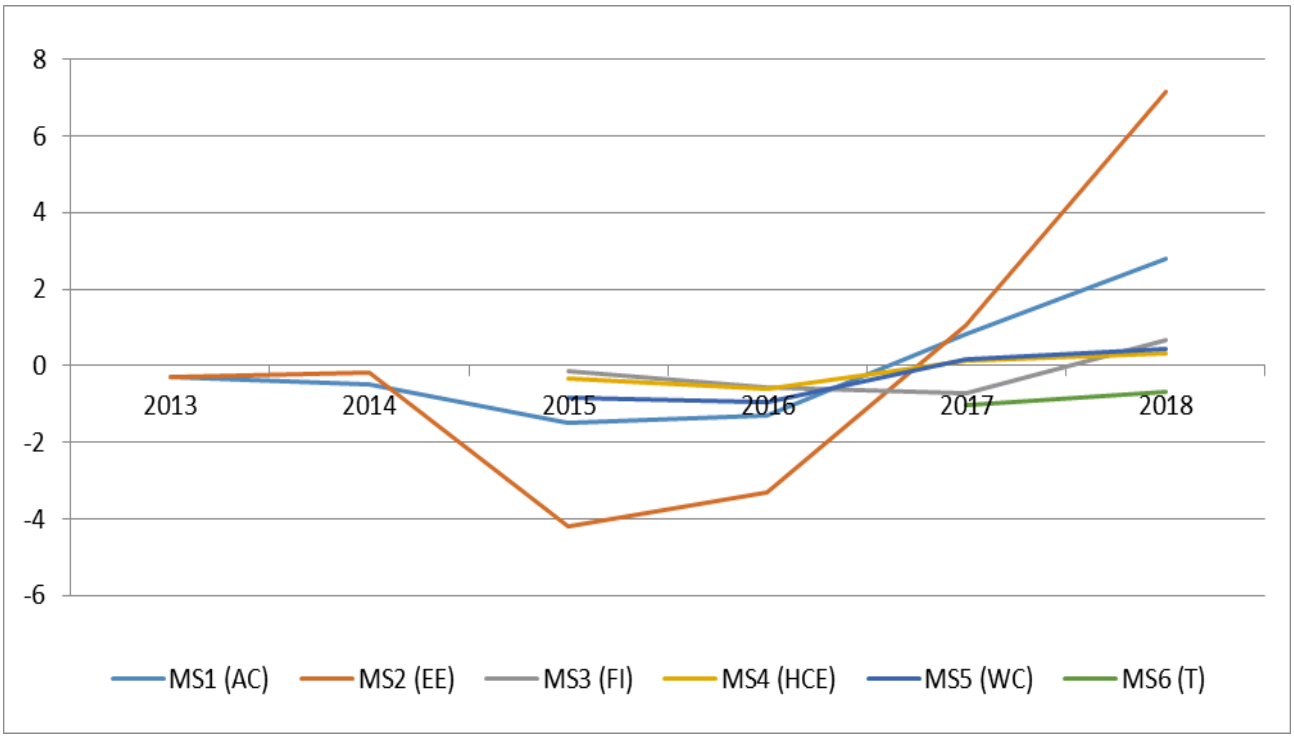
2. Money streams on investment projects 2015-2018 year of company OWEN in millions to the hryvnia

Money stream	2013	2014	2015	2016	2017	2018	NPV	Ток
MS1 (AC)	-0,31	-0,49	-1,51	-1,29	0,82	2,81	0,03	6
MS2 (EE)	-0,28	-0,18	-4,18	-3,33	1,06	7,14	0,23	6
MS3 (FI)			-0,14	-0,56	-0,74	0,67	-0,77	6
MS4 (HCE)			-0,34	-0,59	0,11	0,33	-0,49	6
MS5 (WC)			-0,84	-0,96	0,15	0,45	-1,2	6
MS6 (T)					-1,03	-0,67	-1,7	6

From a fig. 1 we see direct dependence, if we will increase expense part, id est investments that it will influence in a time of return of investments. It is visible on a project AC a 3,6 million hrn. was inlaid, and in 2017-18г. a 3,63 million hrn. is got, recoupment trod on a sixth year, NPV=0,03 million hrn., плановая recoupment too was sixth year. On the project of EE, a 7,97 million hrn. was inlaid, and in 2017-18 year a 8,2 million hrn. is got, NPV=0,23 million

[253] Источник: https://fd.ru/articles/158105-qqq-16-m8-26-08-2016-npv-sut-pokazatelya-i-formula-rascheta

hrn., recoupment trod on a sixth year.



Picture 1. Money stream 2015-2018 year on the investment projects of company OWEN

2. Index of profitability (I_R), that shows how many can be got acuests from one inlaid hryvnia, usually norm 3-5.

3. Internal form of profitableness (IRR) (shows a percent at that NPV=0).

4. term of recoupment of project $T_{ок}$.

Every project has the cycle and stages, such as:

- innovative cycle of,
- element preparation,
- life cycle.

Expenses on preparation include:

- expenses on labour resources (motivation, not material, material);
- informative constituent;
- technical preparation;
- technological;
- economic.

For a design, it is necessary to pass the stages:

1. classification of factors that influence on IR of personnel,
2. the model of optimization hatches on a basic factor,
3. reductions of term (we will take this model).

In a table 2 values over of percent of realization and character of implementation of functions of control system are brought by the personnel (HRMS) of company OWEN. Data were certain by questioning of employees of company, all was polled about 45 (chiefs of departments, leaders of cells, human department of resources, service of personnel).

2. Percent of realization and character of implementation of HRMS of company OWEN (Kharkiv)

№	Subsystem of HRMS (responsible subdivisions)	% realization
1	Terms of labour (human department of resources (HDofR), service of personnel (SP), group on work with a personnel and engineer on a labour protection)	23
2	Labour relations (HDofR, SP, HR managers, educational center (EC), chiefs of production, leaders of cells)	15
3	Management and account of shots (HDofR, SP, EC, engineer on providing of the system Bitrix inwardly productive electronic operative resource)	83
4	Planning is prognostication and marketing of personnel (HDofR and chiefs of subdivisions, SP, HR manager, leaders of departments, external specialists)	55
5	Development of shots (EC, group of technical support (GTS), business manager, HDofR chiefs of departments)	60
6	Analysis and development of methods of stimulation of labour (Director, leaders of departments, HDofR)	50
7	Legal services (external specialists)	30
8	Development of social infrastructure (HDofR, SP,)	43
9	Development of organizational structure of management (business manager, helper of leader, chief of departments)	65

In a table 3 specific gravity of influence of subsystems of HRMS on IR of personnel on the example of company OWEN, that was certain by means of method of pair comparisons, questioning was conducted by the method of questionnaire of employees of company (from them leaders of departments, chiefs of cells of and other).

3. Specific gravity of influence of subsystems of HRMS on IR of personnel on the example of company OWEN

	1. Terms of labour	2. Labour relations	3 Management and account of shots	4. Planning prognostication and marketing of personnel	5. Development of shots	6. Analysis and development of methods of stimulation of labour	7. Legal services	8. Development of social infrastructure	9. Development of organizational structure of management	Sum of balls	Specific gravity (γ_{iem})
1. Terms of labour	X	1	1	0	1	0	1	1	1	6	0,17
2. Labour relations	0	X	1	0	0	1	1	0	1	4	0,11
3 Management and account of shots	1	1	X	0	0	0	1	0	0	3	0,08
4. Planning prognostication and marketing of personnel	1	1	0	X	0	0	1	0	0	3	0,08
5. Development of shots	1	1	1	0	X	1	1	0	0	5	0,14

Table 3

6. Analysis and development of methods of stimulation of labour	0	1	1	1	1	X	1	0	0	5	0,14
7. Legal services	0	0	0	0	0	0	X	0	0	0	0
8. Development of social infrastructure	1	1	0	0	1	0	1	X	1	5	0,14
9. Development of organizational structure of management	1	1	0	1	0	1	1	0	X	5	0,14
Total	5	7	4	2	3	3	8	1	3	36\36	1

In a table 4 dependences over of subsystem of HRMS and their specific gravity, development and level of IR of personnel, are brought in a company OWEN. And further it is illustrated on fig. 2.

4. Subsystems of HRMS their specific gravity, development and level of IR of personnel in a company OWEN

Subsystems HRMS	% realization (I_i)	Specific gravity ($\gamma_{Iicп}$)	Level of IR of personnel (Iicп)
1. Terms of labour	23	0,17	0,0391
2. Labour relations	15	0,11	0,0165
3 Management and account of shots	83	0,08	0,0664
4. Planning prognostication and marketing of personnel	55	0,08	0,044
5. Development of shots	60	0,14	0,084
6. Analysis and development of methods of stimulation of labour	50	0,14	0,07
7. Legal services	30	0	0
8. Development of social infrastructure	43	0,14	0,0602
9. Development of organizational structure of management	65	0,14	0,091
Total	middle 47,11	1	0,4712

On a picture 2 traced clearly, that the function of HRMS developed not always has large specific gravity.

Further we will consider the level of IR of personnel. He can be defined on a formula:

$I_{ICП}= \sum_{i<1}^{n} I_i * \gamma_{Iicп}$

where I_i - percent of realization ,

$\gamma_{Iicп}$ - specific gravity,

$I_{ICП}$ - level of IR of personnel.

The sum of level of IR of personnel settles accounts on a formula:

$\sum_{i<1}^{n} I_i = I_1 * \gamma_{Iicп1} + I_2 * \gamma_{Iicп2} + I_3 * \gamma_{Iicп3} + I_4 * \gamma_{Iicп4} + I_5 * \gamma_{Iicп5} + I_6 * \gamma_{Iicп6} + I_7 * \gamma_{Iicп7} + I_8 * \gamma_{Iicп8} + I_9 * \gamma_{Iicп9}.$

Value $I_{ICП}$ hesitate from 0 to 1, as well as values I_i.

$0 \le I_{ICП} \le 1$.

$0 \le I_i \le 1$.

Level of IR of personnel ($I_{ICП}$) – shows level of IR of personnel, that at an increase $I_{ICП}$ efficiency of innovations and increase of profit increase.

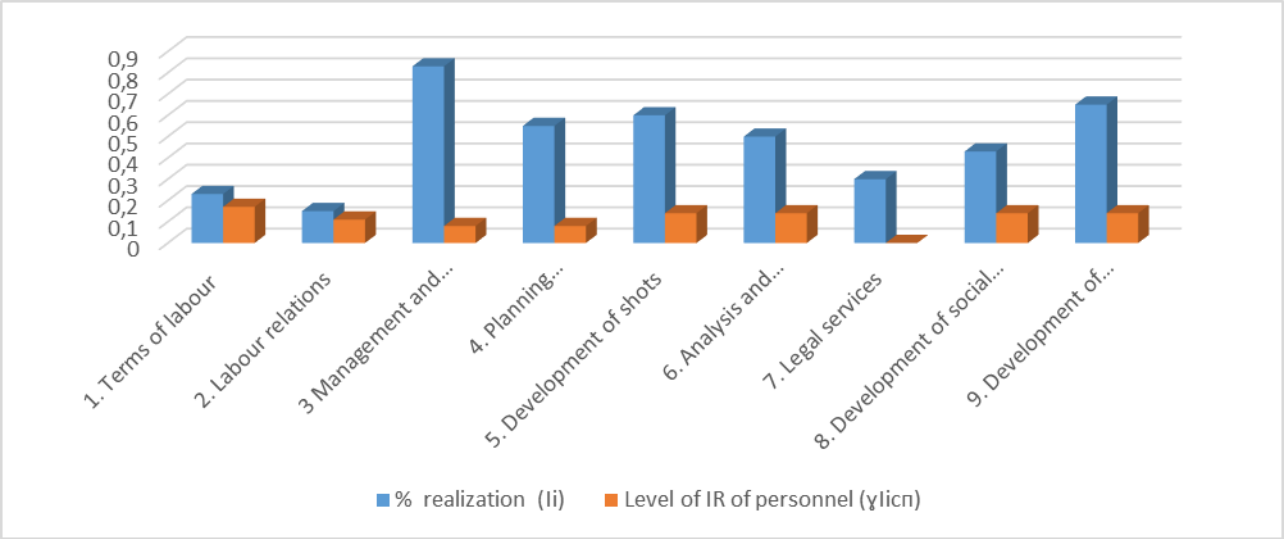


Fig. 2. Percent of development of HRMS and specific gravity

We will conduct an analysis on years from 2015 to 2017 we will consider, as capitalization (C) of company changes with a change level of IR of personnel ($I_{ICП}$).

4. Change of level of IR of of personnelи capitalization after 2015-2017 year of company OWEN

	2015	2016	2017
Volume of investments on a project (I), million a hrn.	1	0,7	0,3
Capitalization (C), million a hrn.	4,1	4,5	5
Profit from realization of products (PRP), million a hrn.	5,6	8	12,4
Level of IR of personnel ($I_{ICП}$).	0,34	0,41	0,4712
Return of profit (RP)	0,19	0,45	1,67

In all the projects 6 (considered before). Capitalization settles accounts for to 6 projects.

As be obvious from a table 4, at the height of level of IR, capitalization grows and results in the height of profit, that talks that in companies it is needed to spare large attention to the increase of IR of personnel and on it to provide funds.

By means of equalization it is possible to define on graphic arts $I_{icп}$ putting instead of x.

$RP=a+b* I_{icп}$

It is possible to define to what level $I_{icп}$ it is possible to lead to by means of investments.

PRP – we can too define by means of chart, as a profit will increase at the increase of index $I_{icп}$.

$PRP=a+ b * I_{icп}$

$I_{icпo}$ optimal.

$I_{icпб}$ base

It is necessary to conduct researches

-Change optimal - base by specific weight.
- Research C - where went on a structure
-Return from capital investments in the certain state

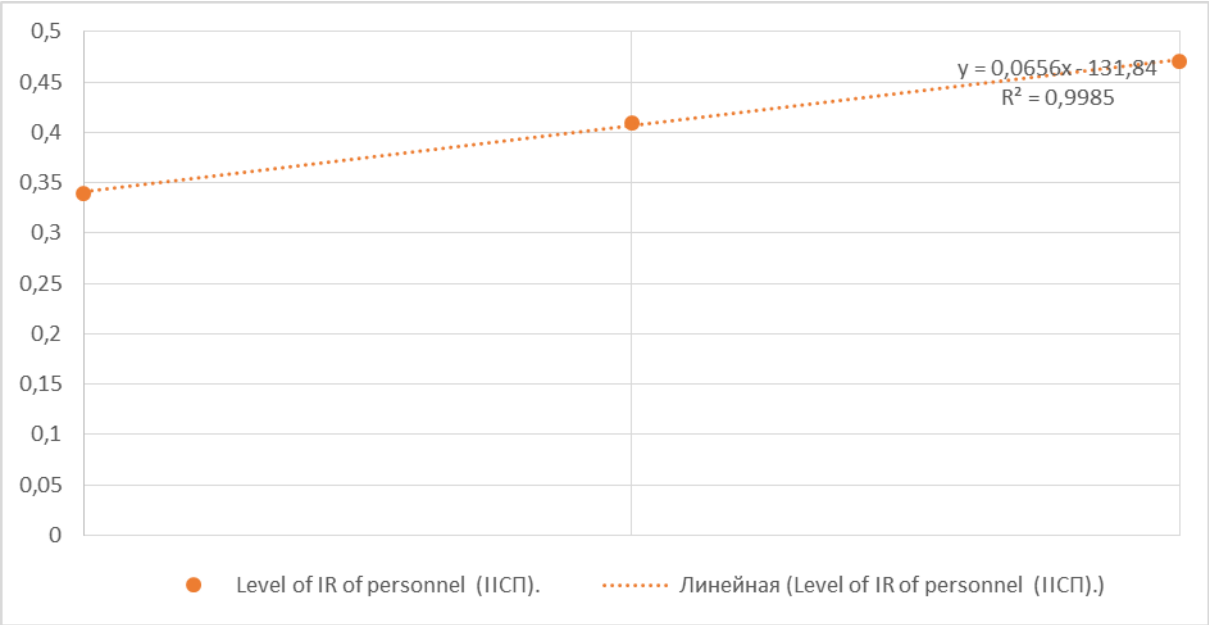


Fig. 3.

Every constituent changes from a general constituent.

Investments more advantageous in that will do there where a return will be anymore, in this case projects of EE, AC.

A factor analysis shows, as every correlation of influence influences on the external general and recommendable volume of investments, where to inlay investments and all constituents to take to the maximum at the beginning there where, there will be anymore a return then in other.

We can find $\Delta I_{icп}$

Whether will influence on a change Δ PRP

On this formula it will be possible to define profitability of capital investments.

$\Delta I_{icп}$ - $\Delta PRP - \Delta PRP/C_1*100\%$

Defining the index of profitability is possible from a formula:

$RP= \Delta PRP/C$

We will enter a concept elasticity of IR. Elasticity it is a measure of sensitiveness of one variable (for example: demand or suggestion) to the change other (for example: price, acuests), showing on how many percents the first index will change at the change of second on 1%.

An index elasticity of IR of personnel shows increase of index of $I_{icп}$ that influences on the increase of return of profit of PR and it is possible to estimate, prognosis on the future as far as effective investments.

Conclusion: coming from higher expounded it is possible to draw conclusion that description economy of mathematical case of innovative receptivity of personnel frame on Ukrainian industrial enterprise it is possible from walking from such parameters as elasticity, the net brought profit (NPV) over, Index of profitability, term of recoupment of project, level of IR of personnel. These indexes we considered on the example of enterprise of OWEN. And we see that indexes very can us help further in investment activity and increase of efficiency of work of personnel of him IR, that will result in the increase of profit of company on the whole.